REMARKS

This Amendment is submitted in response to the final Office Action mailed on February 3, 2010. A Request for Continued Examination ("RCE") ($810.00) is submitted herewith. The Director is authorized to charge $810.00 for the RCE and any additional fees which may be required, or to credit any overpayment to Deposit Account No. 02-1818. If such a withdrawal is made, please indicate the Attorney Docket No. 3712174-00463 on the account statement.

Claims 13-24 are pending in this application. Claims 1-12 were previously canceled without prejudice or disclaimer. In the Office Action, Claims 13-24 are rejected under 35 U.S.C. §103. In response, Claims 13-17 and 21-24 have been amended, and Claims 25-27 have been newly added. The amendments do not add new matter. The new claims do not add new matter. In view of the amendments and/or for at least the reasons set forth below, Applicant respectfully submits that the rejections should be withdrawn.

Applicant respectfully notes that Claims 14-17 and 21-22 have been amended solely for clarification purposes to be consistent with currently amended independent Claim 13. These amendments do not add new matter. The amendments are supported in the Specification at, for example, Abstract; page 2, paragraphs 11-14 and 18-20; page 3, paragraph 41; pages 3-4, paragraph 42; page 4, paragraphs 43 and 47-48; page 5, paragraphs 53-55; page 6, paragraph 63; pages 6-7, paragraph 64; page 7, paragraphs 65-66; Figs. 1A-3C.

In the Office Action, Claims 13-16, 21 and 23 are rejected under 35 U.S.C. §103(a) as being unpatentable over Japanese Patent Publication No. 07-249419 A to Goto et al. ("*Goto*") in view of U.S. Patent No. 5,258,239 to Kobayashi ("*Kobayashi*"). In response, Applicant has amended Claims 13 and 23. In view of the amendments and/or for at least the reasons set forth below, Applicant respectfully submits that, even if combinable, the cited references fail to disclose each and every element of independent Claims 13 and 23 and Claims 14-16 and 21 that depend therefrom. Moreover, one of ordinary skill in the art would have no reason to combine the cited references to arrive at the present claims.

Currently amended independent Claims 13 and 23 recite, in part, a fuel cell separator comprising: a separator body adapted to contact with a generating element to create electrical continuity to said generating element, thereby forming a generating cell, wherein the generating element is a MEA adapted to receive hydrogen gas or methanol as fuel; a fluid oxidant supply channel formed on said separator body to supply a fluid oxidant to said generating element; and

at least one element selected from the group consisting of a fan and a pump provided within said separator body for supplying said fluid oxidant into said fluid oxidant supply channel. These amendments do not add new matter. The amendments are supported in the Specification at, for example, pages 1-2, paragraph 10; page 2, paragraphs 11-14 and 18-19; page 2, paragraphs 38-42; Figs. 1A-3C.

Conventional hydrogen or methanol-based fuel cells include an air supplying fan provided separate from the fuel cell body to collectively supply air to all of the fluid oxidant supply channels. See, Specification, page 1, paragraphs 2-5. However, if the air supplying fan is provided outside the fuel cell body, there are variations in the amount of air supplied to each channel, and it is difficult to reduce the size of the fuel cell. See, Specification, page 1, paragraphs 6-8. Therefore, the present claims provide a fuel cell wherein at least one element selected from the group consisting of a fan and a pump provided within said separator body for supplying said fluid oxidant into said fluid oxidant supply channel. By providing the air supply fan or pump within the separator body of the fuel cell, the size of the fuel cell may be reduced. See, Specification, pages 1-2, paragraph 10. Furthermore, variations in the amount of fluid oxidant to be supplied to the channels of the separator may be reduced, thereby allowing for stable power generation in the fuel cell. See, Specification, page 2, paragraphs 11-12. In contrast, the cited references are deficient with respect to the present claims.

For example, even if combinable, the combination of *Goto* and *Kobayashi* fails to disclose or suggest at least one element selected from the group consisting of a fan and a pump provided within said separator body for supplying said fluid oxidant into said fluid oxidant supply channel as recited, in part, by independent Claims 13 and 23. The Patent Office asserts that *Goto* discloses fluid oxidant supplying means which are flow control valves provided within the separator. See, Office Action, page 3, lines 2-4. However, the Patent Office admits that *Goto* is silent toward the fluid oxidant supplying means comprising a fan or pump. See, Office Action, page 3, lines 5-6. Thus, Applicant has amended Claims 13 and 23 to remove the reference to a "fluid oxidant supplying means" and instead recite that the element provided within the separator body is "selected from the group consisting of a fan and a pump." In contrast, *Goto* teaches that its air supply pump 92 is located outside the separator 1. See, *Goto*, paragraph 39; Drawing 1. As such, nowhere does *Goto* teach or suggest a pump or a fan provided within its separator body.

The Patent Office relies on *Kobayashi* for the disclosure of a diaphragm pump which is integrated within the cell casing to provide air supply control. See, Office Action, page 3, lines 10-13. However, *Kobayashi* merely discloses an air pump 8 which is external to its separator 5 and air diffusion chamber 2. See, *Kobayashi*, column 2, lines 44-64; Fig. 1. As such, neither *Goto* nor *Kobayashi* teaches a fan or a pump provided within the separator body. Therefore, contrary to the Patent Office's assertion, even if combinable, the combination of *Goto* and *Kobayashi* fails to disclose or suggest at least one element selected from the group consisting of a fan and a pump provided within said separator body for supplying said fluid oxidant into said fluid oxidant supply channel in accordance with the present claims.

Moreover, one of ordinary skill in the art would have no reason to combine *Kobayashi* with *Goto* to arrive at the present claims. The Patent Office asserts that it would have been obvious to one of ordinary skill in the art to replace the flow control valves of *Goto* with the diaphragm pump of *Kobayashi* because *Kobayashi* teaches that its pump facilitates air supply control and enhances the electrical characteristics of the cell. See, Office Action, page 3, lines 13-17. However, "[t]he mere fact that references can be combined or modified does not render the resultant combination obvious unless the results would have been predictable to one of ordinary skill in the art." See, M.P.E.P. §2143.01(III) (2009).

Goto is entirely directed to a fuel cell having improved temperature control due to the control valves in the gas passages. See, *Goto*, Abstract; paragraphs 10-18; Drawing 1. *Goto* is entirely unconcerned with the size of its fuel cell and instead with obtaining more precise temperature control with its control valves. See, *Goto*, Abstract. In contrast, *Kobayashi* is directed to a metal-air cell or battery using zinc as the negative electrode fuel which includes a small fan within the battery casing in order to reduce the size of the battery. See, *Kobayashi*, Abstract; column 2, lines 5-18. One of ordinary skill in the art would understand that a metal-air cell operates like a battery and is entirely distinguishable from a fuel cell in which the generating element is a MEA adapted to receive hydrogen gas or methanol as fuel as required by the present claims. In fact, the entire design of the metal-air cell appears to be distinguishable from that of a hydrogen or methanol-based fuel cell as shown in the figures of *Goto* and *Kobayashi*. As such, one of ordinary skill would have had no reason to substitute the diaphragm pump of *Kobayashi* for the control valves of *Goto* to arrive at the present claims with a reasonable expectation of success because the references are directed to different problems in different fields of endeavor.

Furthermore, Applicant respectfully notes that one of ordinary skill in the art would have no reason to substitute the control valves of *Goto* with the air supply pump of *Kobayashi* because it would change the principle of operation of *Goto* and/or render *Goto* unsatisfactory for its intended purpose. "If [the] proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. . . . [In addition, if] the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious." See, M.P.E.P. § 2143.01 (2008).

As discussed previously, *Goto* is entirely directed to a fuel cell having improved temperature control due to the control valves in the gas passages. See, *Goto*, Abstract; paragraphs 10-18; Drawing 1. *Goto* teaches a fuel supply pump 92 external to its fuel cell body but also teaches that control valves 69 are necessary in addition to the pump 92 to precisely control the amount of air supplied to the fuel cell. See, *Goto*, Abstract; paragraphs 39 and 46. As such, one of ordinary skill in the art would have no reason to replace the control valves 69 of *Goto* with an additional air supply pump such as that of *Kobayashi* because *Goto* is entirely directed to the use of its control valves to precisely control the temperature of the fuel cell.

Accordingly, Applicant respectfully requests that the rejection of Claims 13-16, 21 and 23 under 35 U.S.C. §103(a) to *Goto* in view of *Kobayashi* be withdrawn.

In the Office Action, Claims 17-20 are rejected under 35 U.S.C. §103(a) as being unpatentable over *Goto* in view of *Kobayashi* and further in view of U.S. Patent No. 6,500,575 B1 to Shiue et al. ("*Shiue*"). Applicant respectfully submits that, even if combinable, the cited references fail to disclose or suggest each and every element of Claims 17-20 for at least the reasons set forth below.

As discussed previously, the combination of *Goto* and *Kobayashi* fails to disclose or suggest at least one element selected from the group consisting of a fan and a pump provided within said separator body for supplying said fluid oxidant into said fluid oxidant supply channel as required, in part, by independent Claim 13 from which Claims 17-20 depend. The Patent Office relies on *Shiue* merely for the disclosure of a micro fan as a fluid oxidant supply means. See, Office Action, page 5, lines 1-12. Nowhere does *Shiue* teach or suggest that its micro fan is provided within the separator body, nor does the Patent Office cite support for such claimed

element. Instead, *Shiue* teaches that its micro fans 15 are provided in the first and second caps 18a and 18b external to the separator sheet 122. See, *Shiue*, column 3, lines 60-67; column 4, lines 1-25; Fig. 1. Thus, Applicant respectfully submits that, even if combinable, *Shiue* fails to remedy the deficiencies of *Goto* and *Kobayashi* with respect to Claims 17-20.

Accordingly, Applicant respectfully requests that the rejection of Claims 17-20 under 35 U.S.C. §103(a) to *Goto*, *Kobayashi* and *Shiue* be withdrawn.

In the Office Action, Claim 22 is rejected under 35 U.S.C. §103(a) as being unpatentable over *Goto* in view of *Kobayashi* and further in view of *Shiue* and U.S. Patent No. 5,856,035 to Khandkar et al. ("*Khandkar*"). Applicant respectfully submits that, even if combinable, the cited references fail to disclose or suggest each and every element of Claim 22 for at least the reasons set forth below.

As discussed previously, the combination of *Goto*, *Kobayashi* and *Shiue* fails to disclose or suggest at least one element selected from the group consisting of a fan and a pump provided within said separator body for supplying said fluid oxidant into said fluid oxidant supply channel as required, in part, by independent Claim 13 from which Claim 22 depends. The Patent Office relies on *Khandkar* merely for the disclosure of an elongated opening for air flow. See, Office Action, page 5, lines 17-21; page 6, lines 1-6. Nowhere does *Khandkar* teach or suggest that a fan or a pump is provided within the separator body, nor does the Patent Office cite support for such claimed element. Thus, Applicant respectfully submits that, even if combinable, *Khandkar* fails to remedy the deficiencies of *Goto*, *Kobayashi* and *Shiue* with respect to Claim 22.

Accordingly, Applicant respectfully requests that the rejection of Claim 22 under 35 U.S.C. §103(a) to *Goto*, *Kobayashi*, *Shiue* and *Khandkar* be withdrawn.

In the Office Action, Claim 24 is rejected under 35 U.S.C. §103(a) as being unpatentable over *Goto* in view of *Kobayashi* and further in view of U.S. Patent No. 6,127,058 to Pratt et al. ("*Pratt*"). Applicant respectfully submits that, even if combinable, the cited references fail to disclose or suggest each and every element of Claim 24 for at least the reasons set forth below.

As discussed previously, the combination of *Goto* and *Kobayashi* fails to disclose or suggest at least one element selected from the group consisting of a fan and a pump provided within said separator body for supplying said fluid oxidant into said fluid oxidant supply channel as required, in part, by independent Claim 24. The Patent Office relies on *Pratt* merely for the disclosure of a plurality of fuel cell bodies connected with each other on a board. See, Office

Action, page 6, lines 16-22; page 7, lines 1-3. Nowhere does *Pratt* teach or suggest a fan or a pump provided within the separator body of its fuel cells, nor does the Patent Office cite support for such claimed element. Thus, Applicant respectfully submits that, even if combinable, *Pratt* fails to remedy the deficiencies of *Goto* and *Kobayashi* with respect to Claim 24.

Accordingly, Applicant respectfully requests that the rejection of Claim 24 under 35 U.S.C. §103(a) to *Goto*, *Kobayashi* and *Pratt* be withdrawn.

Applicant further notes that Claims 25-27 have been newly added. The new Claims are fully supported in the Specification at, for example, page 4, paragraph 42, lines 10-20; paragraph 45, lines 1-11; Figs. 1B-1C; Figs. 2B-2C; Figs. 3B-3C. No new matter has been added thereby. Applicant respectfully submits that the subject matter as defined in the newly added claims is patentable over the cited art for at least substantially the same reasons discussed above.

Specifically, even if combinable, the cited references fail to disclose at least one element selected from the group consisting of a fan and a pump provided within said separator body wherein said element selected from the group consisting of a fan and a pump has a height smaller than a depth of said fluid oxidant supply channel. The Patent Office admits that *Goto* fails to disclose a fan or a pump provided within the separator body of its fuel cell and instead relies on *Kobayashi* for the claimed element. See, Office Action, page 3, lines 5-17. However, nowhere does *Kobayashi* disclose or suggest that its pump has a height smaller than a depth of said fluid oxidant supply channel. To the contrary, *Kobayashi* demonstrates that its piezo-electric pump 8 has a height greater than the depth of the air diffusion chamber 2. See, *Kobayashi*, column 2, lines 46-52; Fig. 1. As such, even if combinable, the combination of *Goto* and *Kobayashi* fails to disclose or suggest at least one element selected from the group consisting of a fan and a pump provided within said separator body wherein said element selected from the group consisting of a fan and a pump has a height smaller than a depth of said fluid oxidant supply channel as required, in part, by Claims 25-27.

For the foregoing reasons, Applicant respectfully submits that the present application is in condition for allowance and earnestly solicit reconsideration of same.

Respectfully submitted,

K&L GATES LLP

BY _____

Thomas C. Basso
Reg. No. 46,541
Customer No. 29175

Date: April 30, 2010